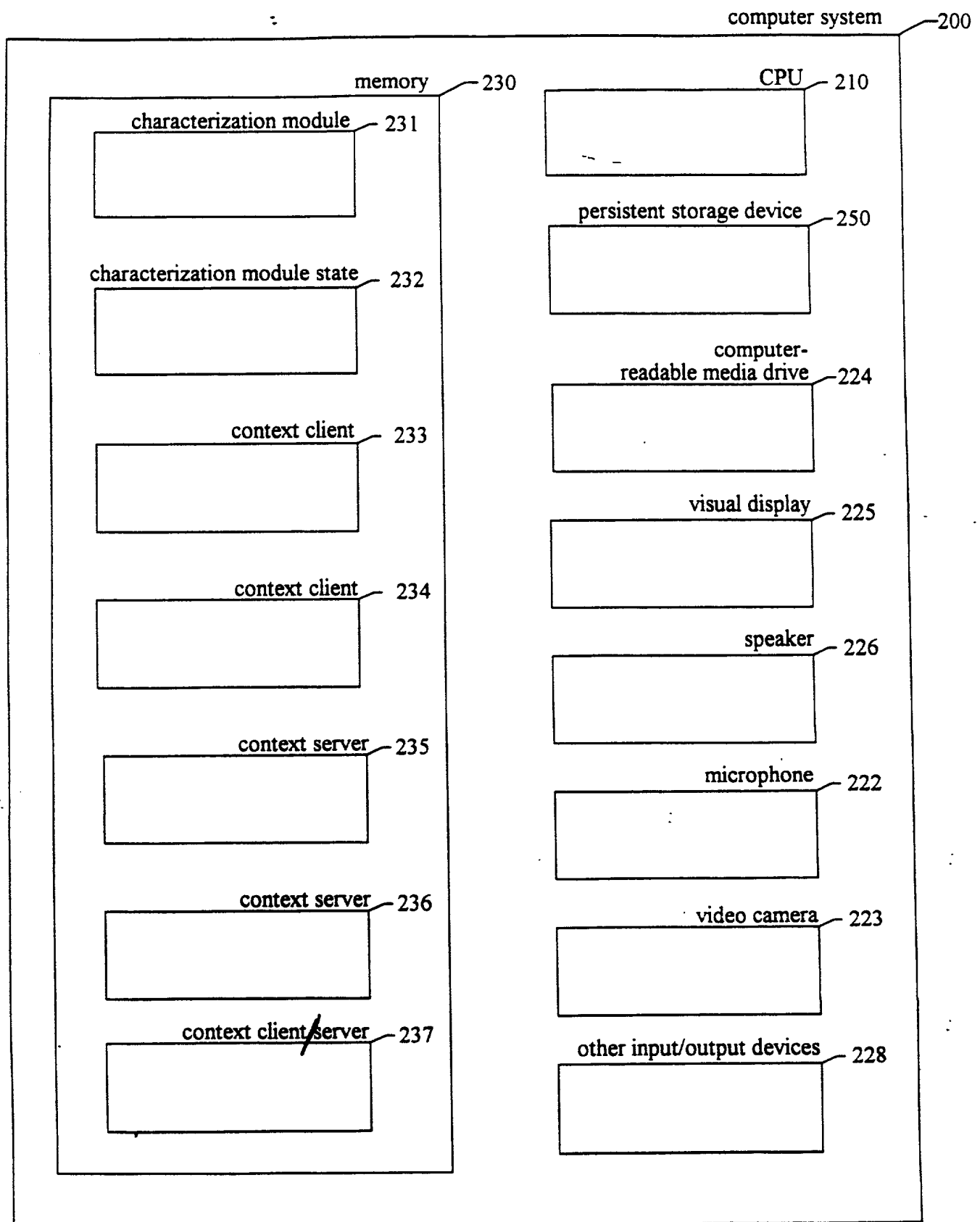
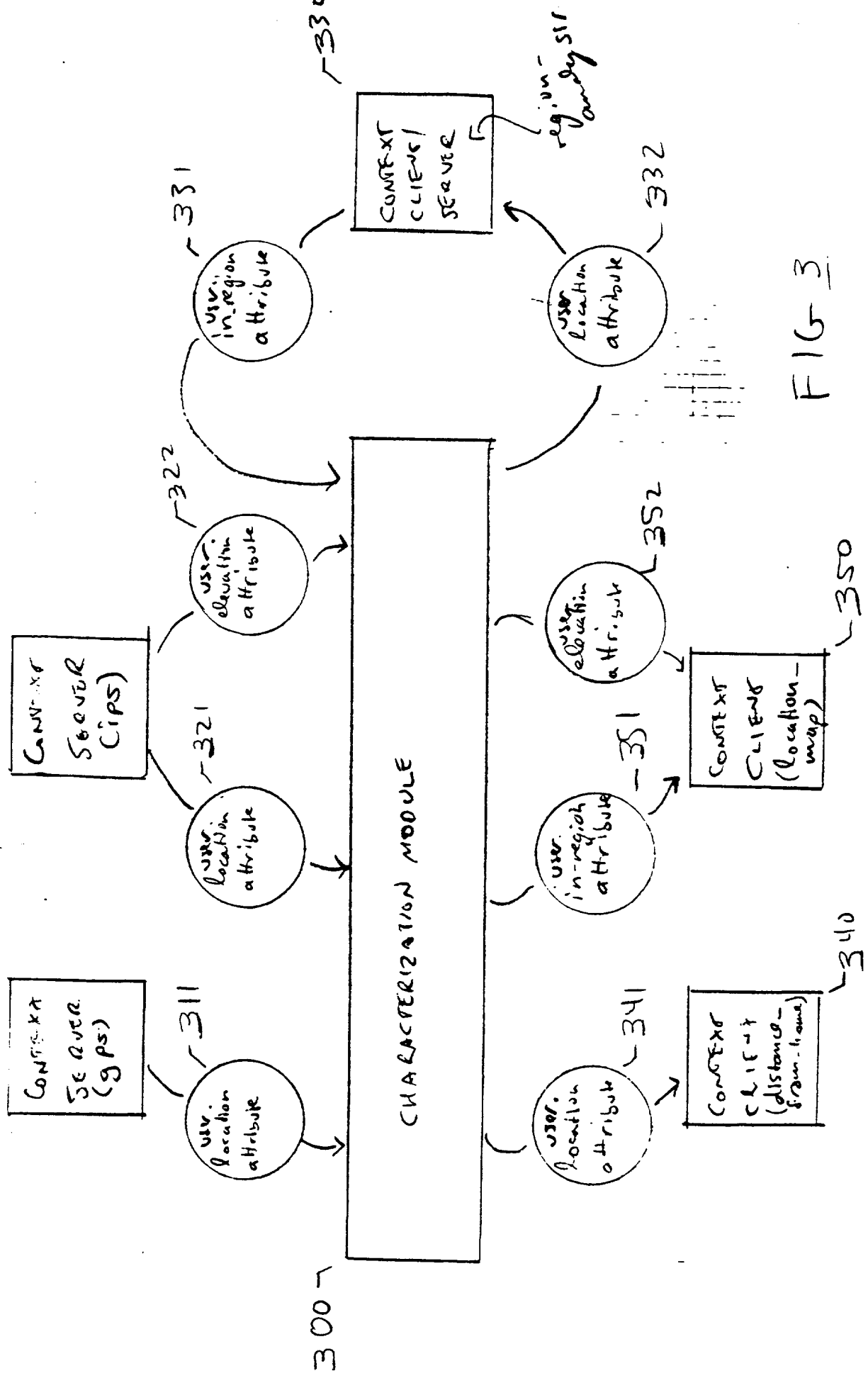


**Fig. 1**



**Fig. 2**



context server table

context server name	version	installation date	filename	request handler
gps	1	2/10/2000	gps.exe	(reference)
ips	1	2/21/2000	ips.exe	(reference)
location_region_analysis	1	2/10/2000	l r a.exe	(reference)

FIG 4

attribute instance table

attribute name	context server name	value	uncertainty	timestamp	units	number of context clients consuming
user.location	gps	47° 38.73' N, 122° 18.43' W	0° 09'	13:11:04.023 2/22/2000	degrees/minutes	2
user.location	ips	47° 38.745' N, 122° 18.424' W	0° 021'	13:11:01.118 2/22/2000	degrees/minutes	2
user.elevation	ips	22	.5	13:11:01.118 2/22/2000	meters	1
user.in_region	location_region_analysis	none	none	none	none	0

context client table

context client name	message handler
location map	(reference)
distance from home	(reference)
region analysis	(reference)

FIG 6

attribute instance table

attribute name	context server name	value	uncertainty	timestamp	units	number of context clients consuming
user.location	gps	47° 38.73' N, 122° 18.43' W	0° 09'	13:11:04.023 2/22/2000	degrees/minutes	2
user.location	ips	47° 38.745' N, 122° 18.424' W	0° 021'	13:11:01.118 2/22/2000	degrees/minutes	2
user.elevation	ips	22	.5	13:11:01.118 2/22/2000	meters	1
user.in_region	location_region_analysis	none	none	none	none	1

FIG 7

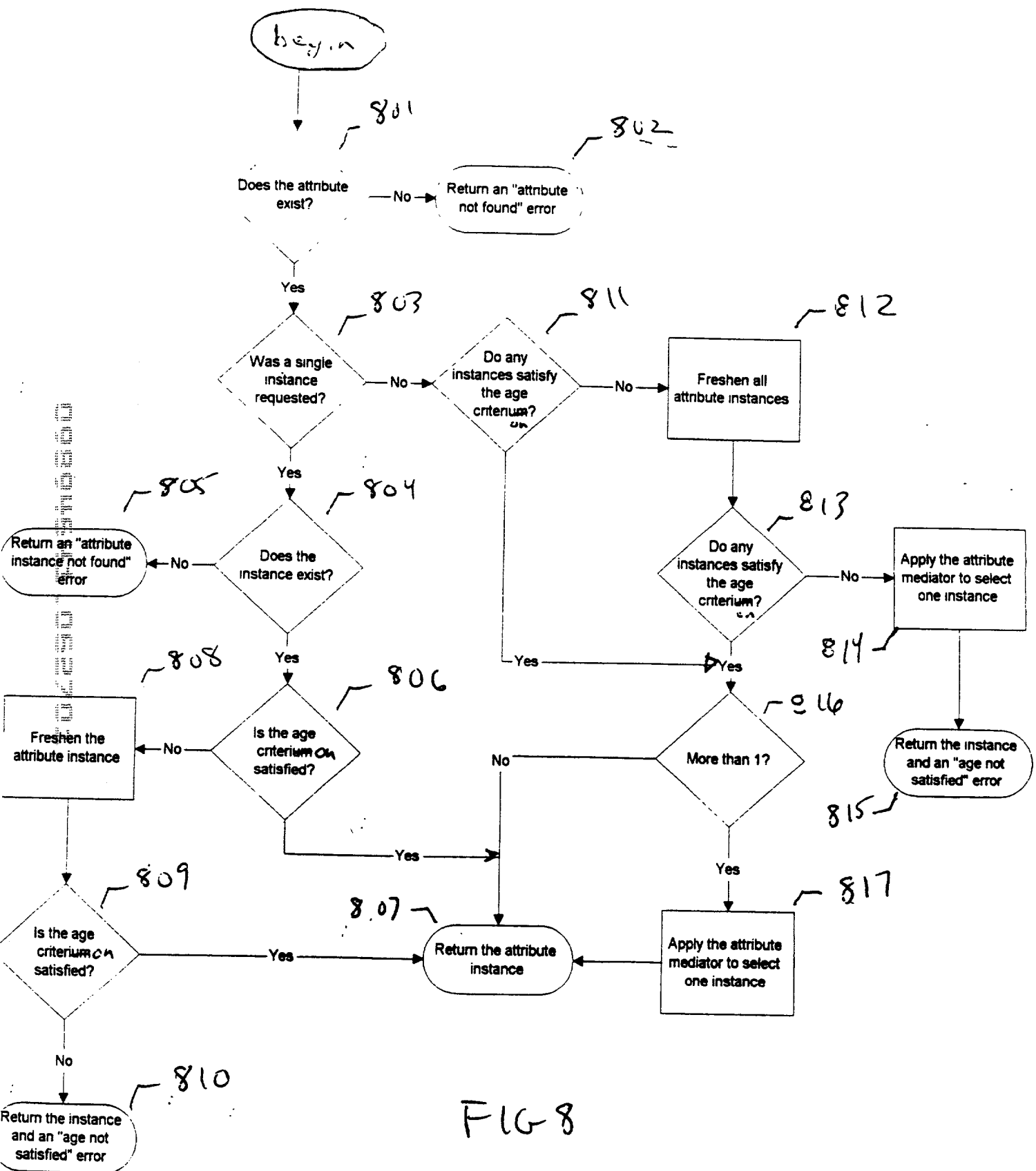


FIG 8

attribute instance table

attribute name	context server name	value	uncertainty	timestamp	units	number of context clients consuming
user.location	gps	47° 38.73' N, 122° 18.43' W	0° 09'	13:11:04.023 2/22/2000	degrees/minutes	2
user.location	ips	47° 38.745' N, 122° 18.424' W	0° 021'	13:11:01.118 2/22/2000	degrees/minutes	2
user.elevation	ips	22.25	.5	13:11:06.565 2/22/2000	meters	1
user.in_region	region analysis	none	none	none	none	1

FIG 9

condition name	context client name	first logical parameter	second logical parameter	comparison value	logical operator
in region true	region analysis	user.in region	none	TRUE	=

FIG 10

FIG. 11

1100

condition monitor table

condition monitor name	context client name	condition name	behavior	frequency	condition last evaluated	trigger handler reference	stopped
region_boundary crossed	region_analysiss	in_region_true	TRUE or FALSE	30	13:11:29.101 2/22/2000	(reference)	no

1111 1112 1113 1114 1115 1116 1117 1118

FIG 11

1200

condition monitor table

condition monitor name	context client name	condition name	behavior	frequency	condition last evaluated	trigger handler reference	stopped
region_boundary crossed	region_analysiss	in_region_true	TRUE or FALSE	30	13:11:59.101 2/22/2000	(reference)	yes

1211 1212 1213 1214 1215 1216 1217 1218

FIG 12



FIG 1310

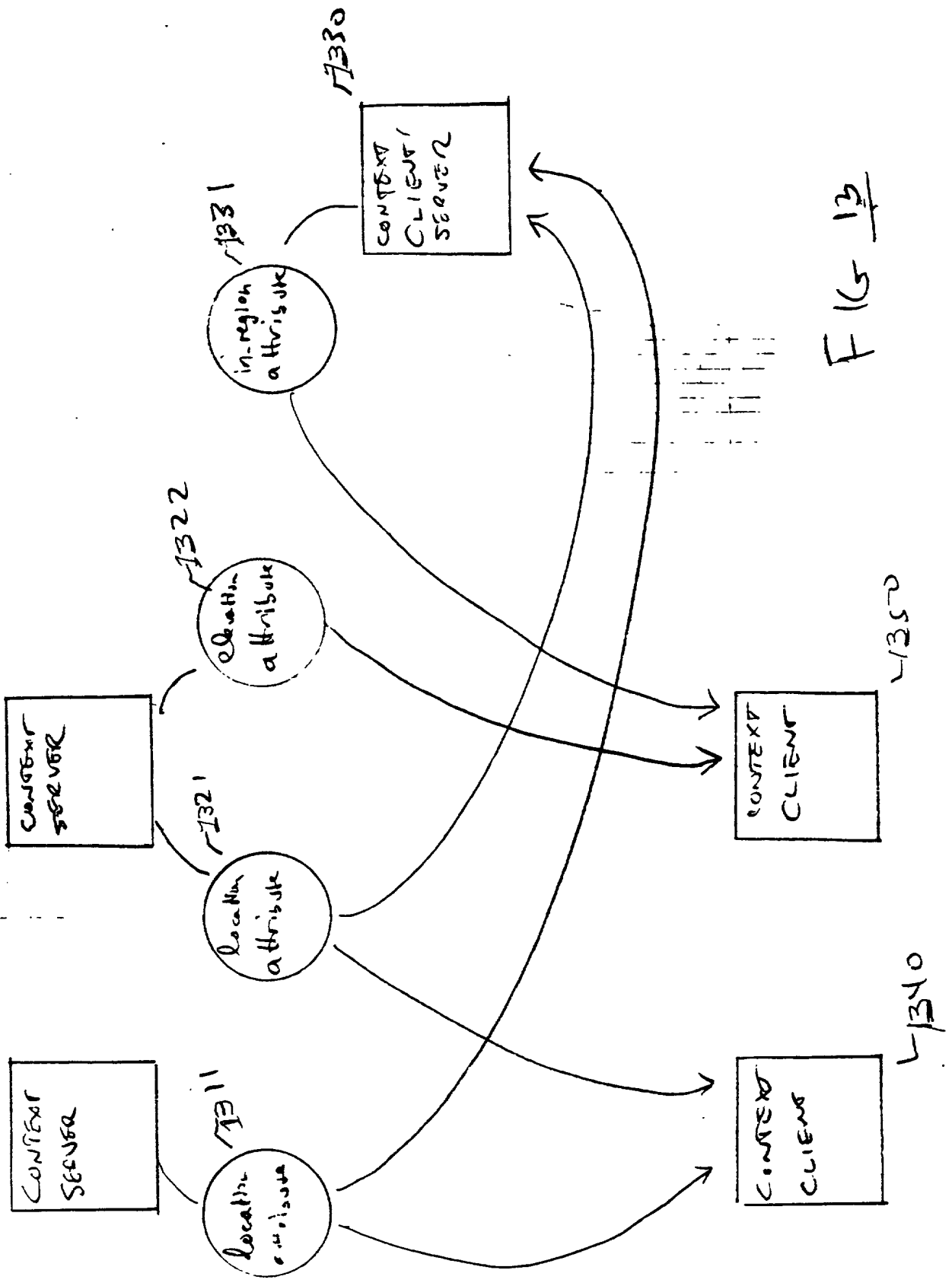


FIG 13

attribute request table

attribute name	context client name
user.location	distance_from_home
user.in_region	location_map
user.location [gps]	location_region_analysis
user.elevation	location_map

Figure 14

1401 ~  
1402 ~  
1403 ~  
1404 ~

1411

1412

**User.**

Desired\_privacy\_level  
 Interruptibility  
 Speed  
 Direction  
 Acceleration  
 Availability.  
     Cognitive\_availability  
     Tactile\_availability  
     Manual\_availability  
     Visual\_availability  
     Oral\_availability  
     Auditory\_availability  
 Proximity.<Item or place name>  
 Mood.  
     Happiness  
     Sadness  
     Anger  
     Frustration  
     Confusion  
 Activity.  
     Driving  
     Eating  
     Running  
     Sleeping  
     Talking  
     Typing  
     Walking  
 Location.  
     Place\_name  
     Latitude  
     Longitude  
     Altitude  
     Room  
     Floor  
     Building  
     Address  
     Street  
     City  
     County  
     State  
     Country  
     Postal\_Code  
 Destination. (same as User.Location.)  
 Physiology.  
     Pulse  
     Body\_temperature  
     Blood\_pressure  
     Respiration

**Person.**<name or ID>. (same as User.)**Platform.**

UI.  
     Oral\_input\_device\_availability  
     Manual\_input\_device\_availability  
     Tactile\_output\_device\_availability  
     Visual\_output\_device\_availability  
     Auditory\_output\_device\_availability

**Platform. (continued)**

CPU.  
     Load  
     Speed  
 Memory.  
     Total\_capacity  
     Used  
 Storage.  
     Total\_capacity  
     Used  
 Connectivity.  
     Connection\_status  
     Connection\_speed  
     Connection\_type/device  
     Connection\_activity  
 Power.  
     Power\_source  
     Power\_level

**Environment.**

People.  
     Nearest  
     Number\_present  
     Number\_close  
 Local.  
     Time  
     Date  
     Temperature  
     Pressure  
     Wind\_speed  
     Wind\_direction  
     Absolute\_humidity  
     High\_forecast\_temperature  
     Low\_forecast\_temperature  
     People\_present  
     Ambient\_noise\_level  
     Ambient\_light\_level  
     Days.<previous or future>.  
         High\_temperature  
         Low\_temperature  
         Precipitation\_type  
         Precipitation\_amount

Place.&lt;place name&gt;. (same as Environment.Local)

**Application.**

Mail.  
     Available  
     New\_messages\_waiting  
     Messages\_waiting\_to\_be\_sent  
 Phone.  
     Available  
     In\_use  
     On/off  
     Notification\_mechanism  
     Call\_incoming  
     Caller\_ID  
 Sound\_recorder.  
     Available  
     Recording

Fig. 15

- 1) User Setting
    - a) Mental Context
      - i) Meaning
      - ii) Cognition
        - (1) Divided User Attention
        - (2) Task Switching
        - (3) Background Awareness
      - iii) Solitude
      - iv) Privacy
        - (1) Desired Privacy
        - (2) Perceived Privacy
      - v) Social Context
      - vi) Affect
    - b) Physical Situation
      - i) Body
        - (1) Biometrics
        - (2) Posture
        - (3) Motion
        - (4) Physical Encumbrment
          - (a) Senses
            - (i) Eyes
            - (ii) Ears
            - (iii) Tactile
            - (iv) Hands
            - (v) Nose
            - (vi) Tongue
          - (b) Workload demands/effects
          - (c) Interaction with computer devices
          - (d) Interaction with people
          - (e) Physical Health
      - ii) Environment
        - (1) Time/Space
        - (2) Objects
        - (3) Persons
          - (a) Audience/Privacy Availability
            - (i) Scope of Disclosure
            - (ii) Hardware affinity for privacy
            - (iii) Privacy Indicator for User
            - (iv) Privacy Indicator for Public
            - (v) Watching Indicator
            - (vi) Being Observed Indicator
        - (4) Ambient Interference
          - (a) Visual
          - (b) Audio
          - (c) Tactile
- 2) Computer
  - a) Power
  - b) Configuration
    - i) User Input Systems
      - (1) Hand/Haptic
        - (a) Keyboard/Keystrokes
      - (2) Voice/Audio
      - (3) Eye Tracking
      - (4) Cursors
        - (a) Axis
        - (b) Resolution
          - (i) Selection
          - (ii) Invocation
        - (c) Accelerators
    - ii) Output Systems
      - (1) Visual
        - (a) Resolution
      - (2) Audio
        - (a) Public/Private
      - (3) Haptic
    - iii) External Resources
      - (1) I/O devices
      - (2) Connectivity
  - c) Data
    - i) Quantity/State
    - ii) Urgency/Importance
      - (1) Use of Prominence
    - iii) Modality
    - iv) Sensitivity/Purpose
      - (1) Privacy Issues
      - (2) Use of Association
      - (3) Use of Safety
    - v) Source/Ownership
      - (1) Types
        - (a) User generated
        - (b) Other computers or people
        - (c) Sensor
        - (d) PC State
      - (2) Use of Association

Fig. 16

Fig. 17

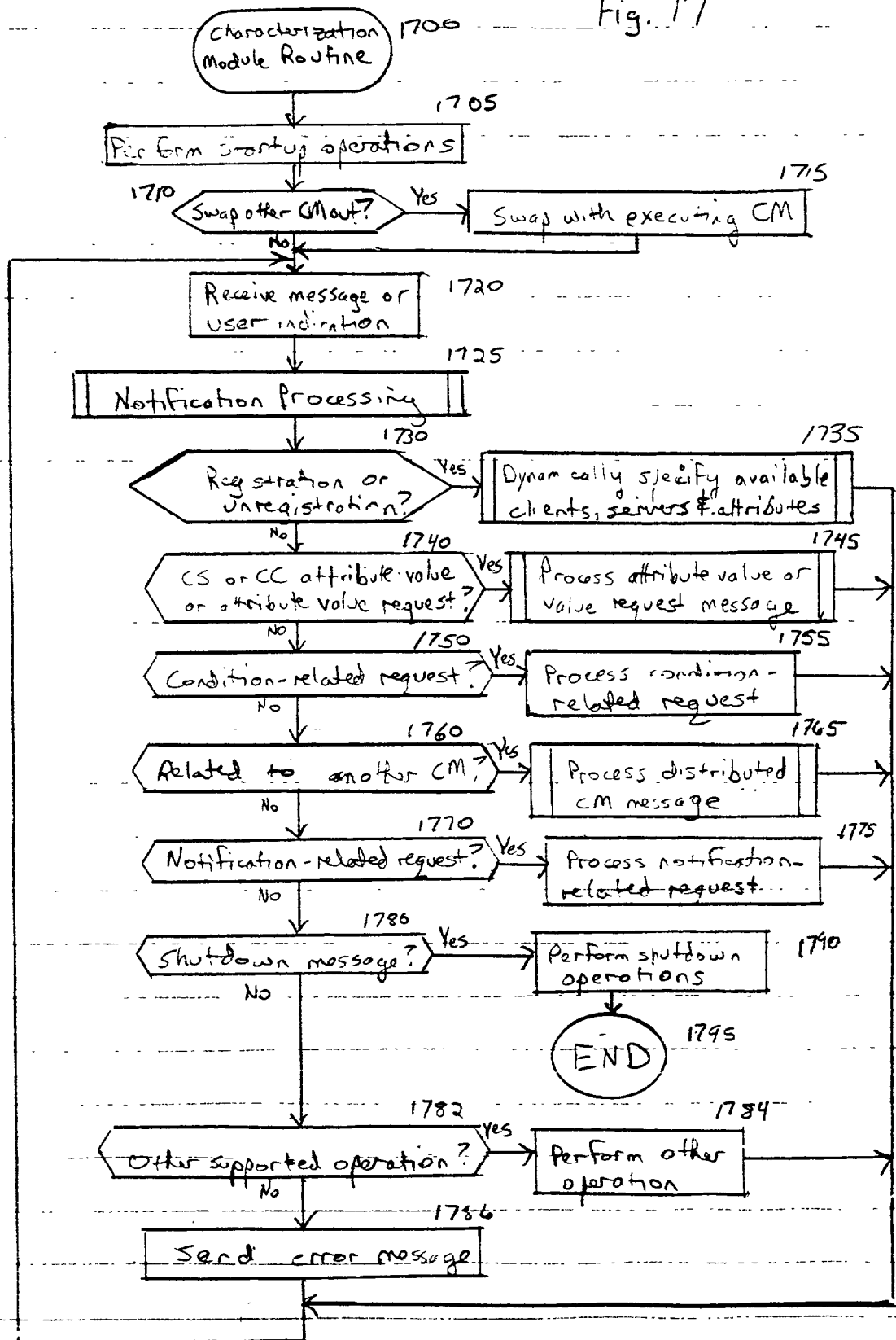


Fig. 18

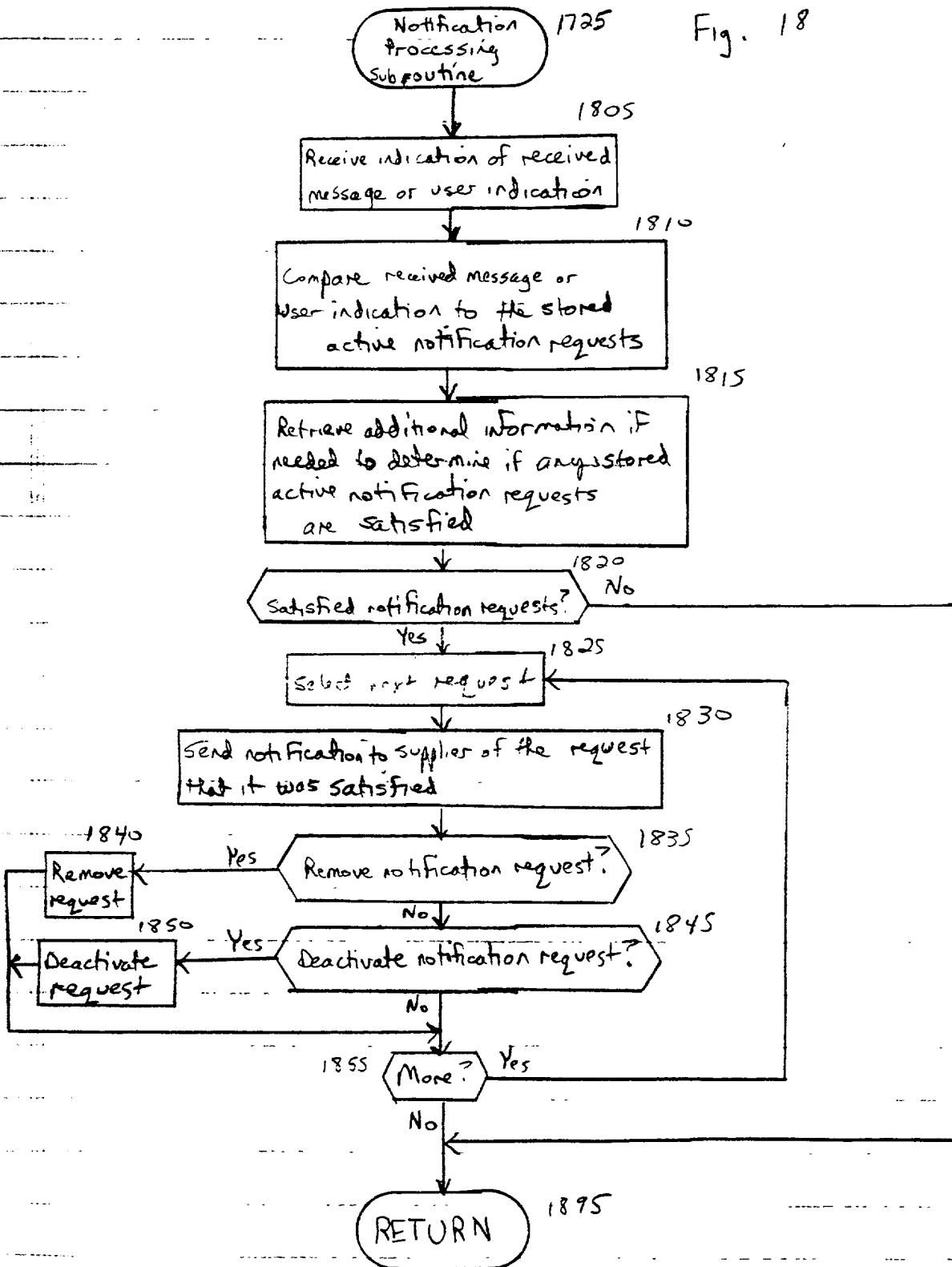
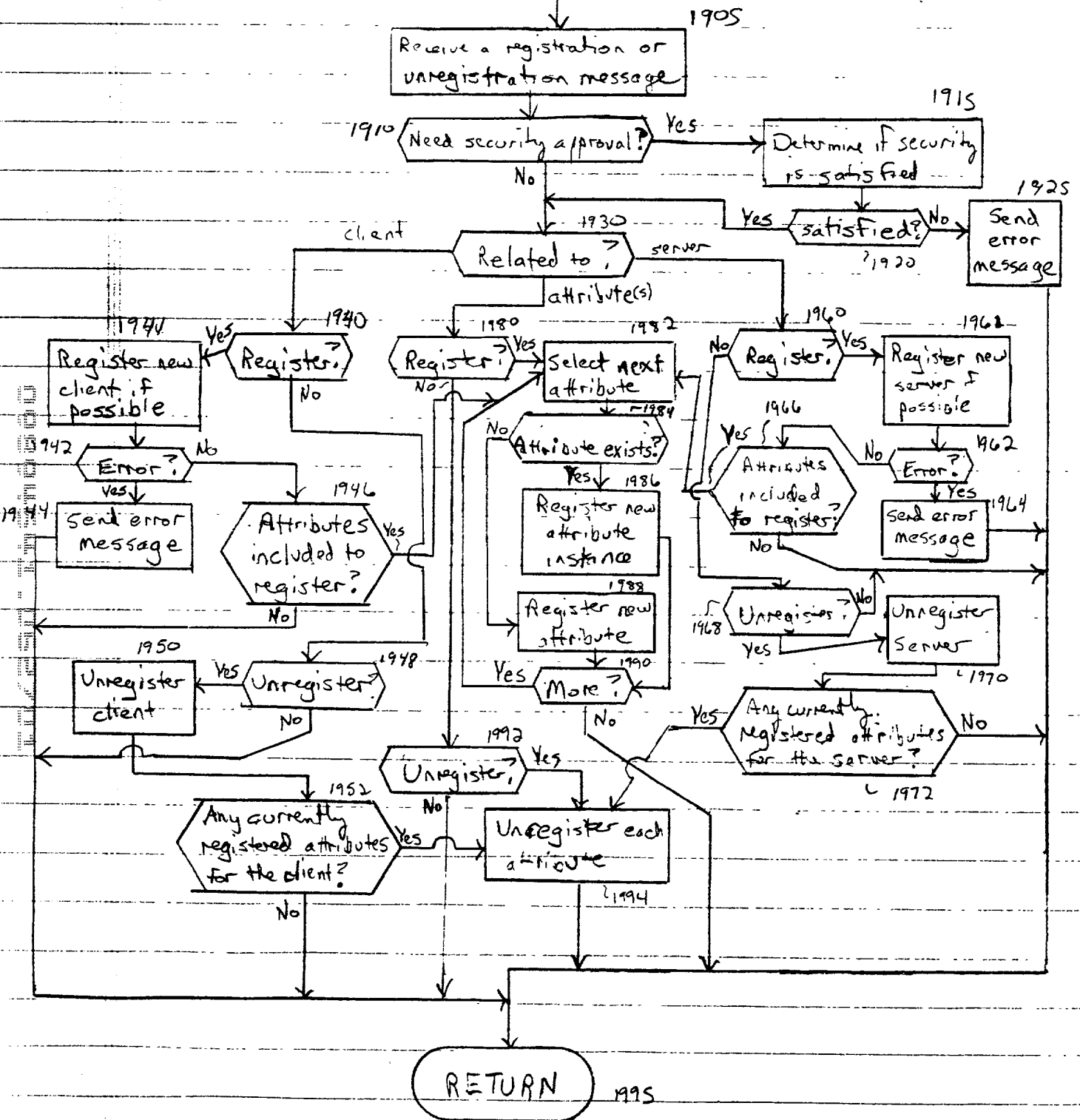


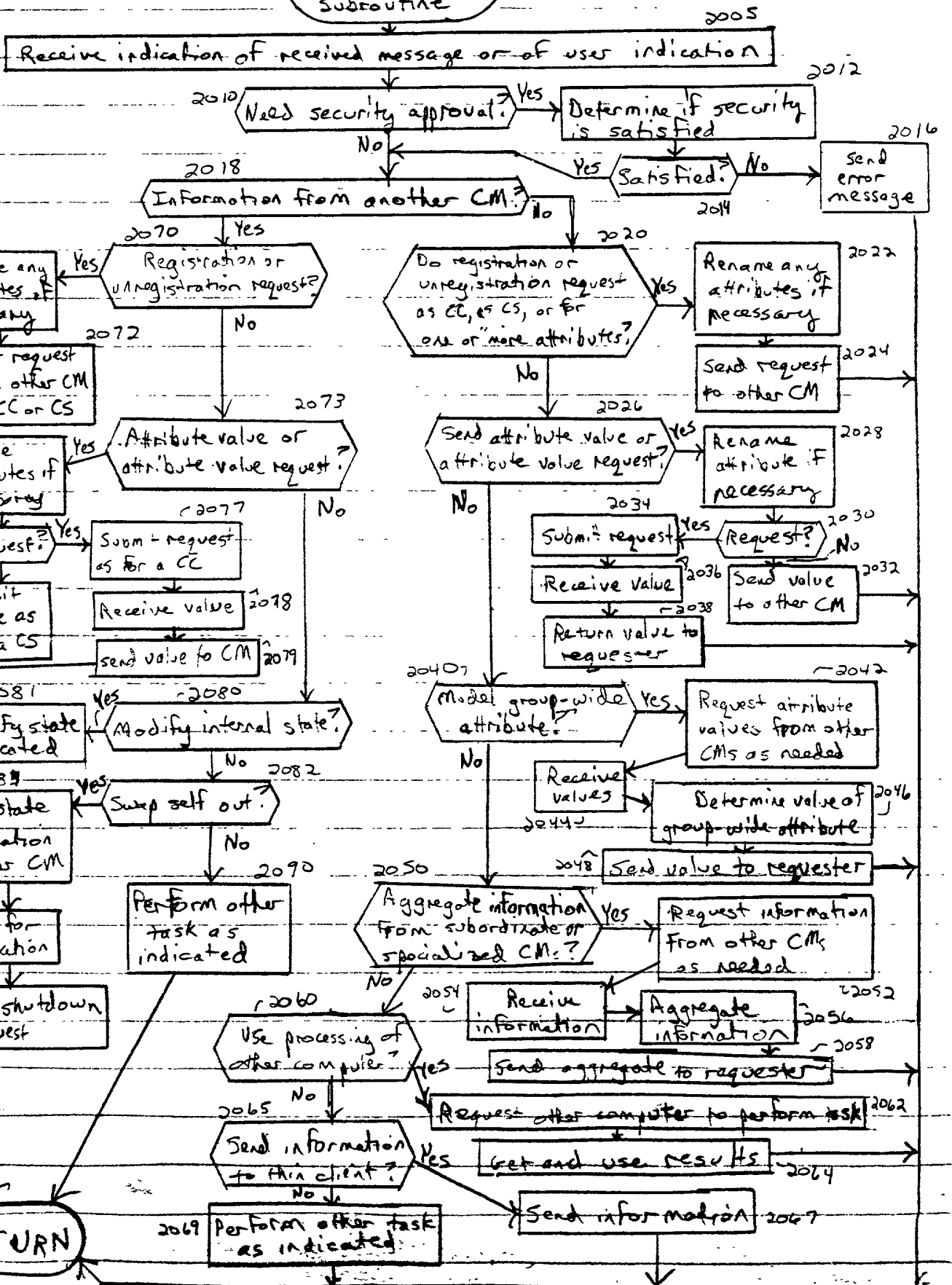
Fig. 19

Dynamically Specify Available  
clients, servers, & Attributes  
Subroutine 1735



1765  
Process Distributed  
CM Message  
Subroutine

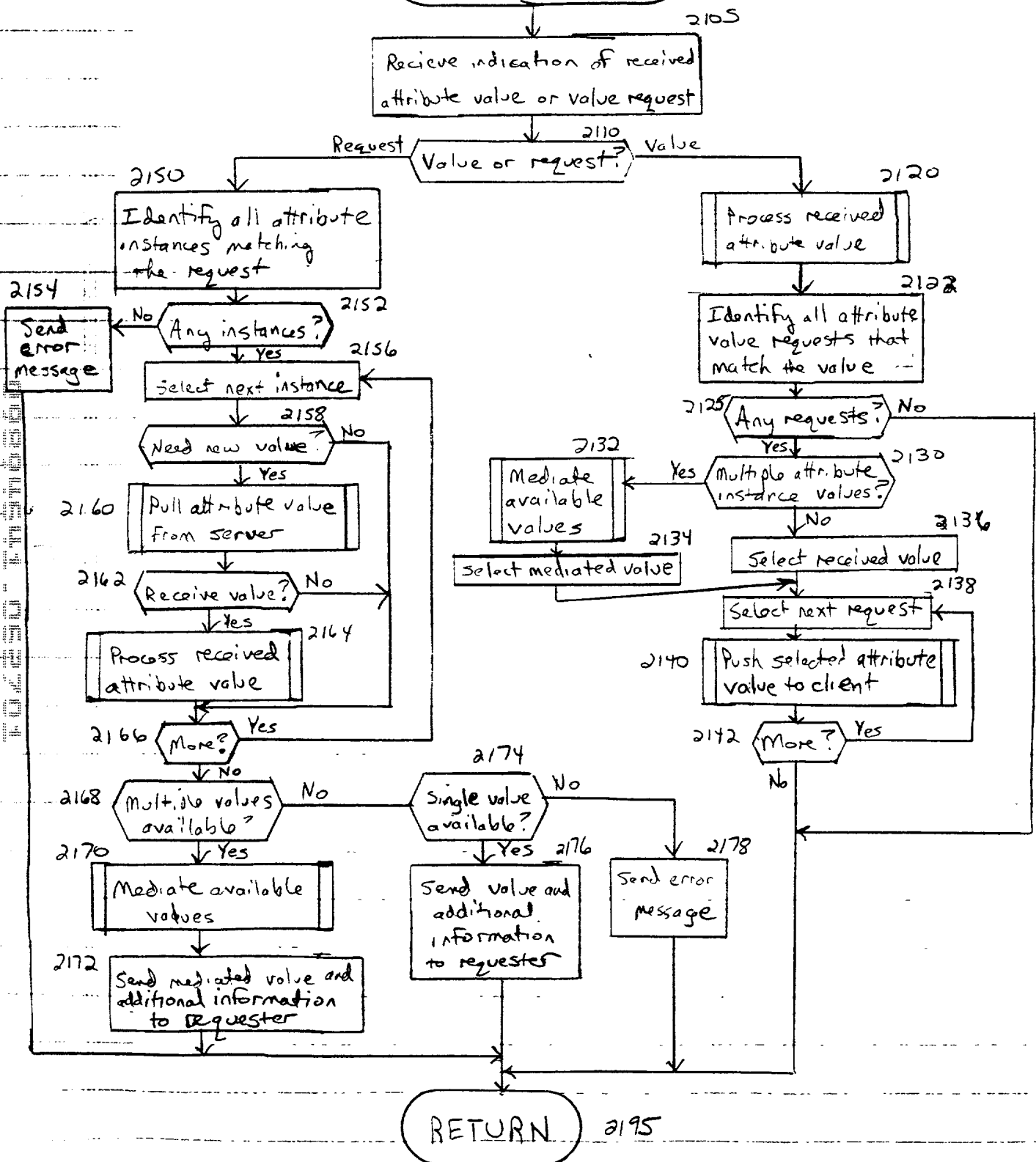
Fig. 20





1745  
Process Attribute Value  
Or Value Request Message  
Subroutine

Fig. 21



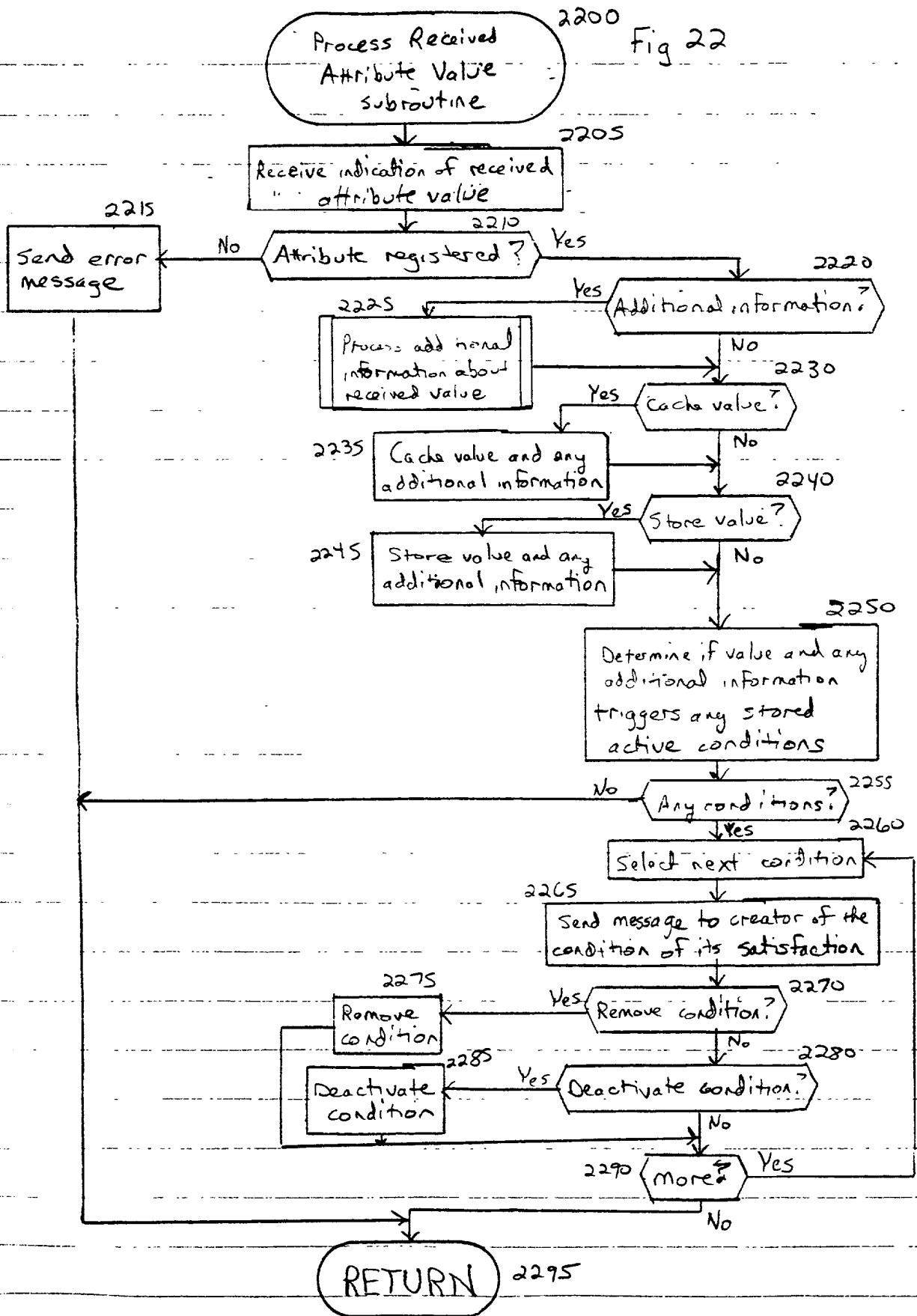


Fig. 23

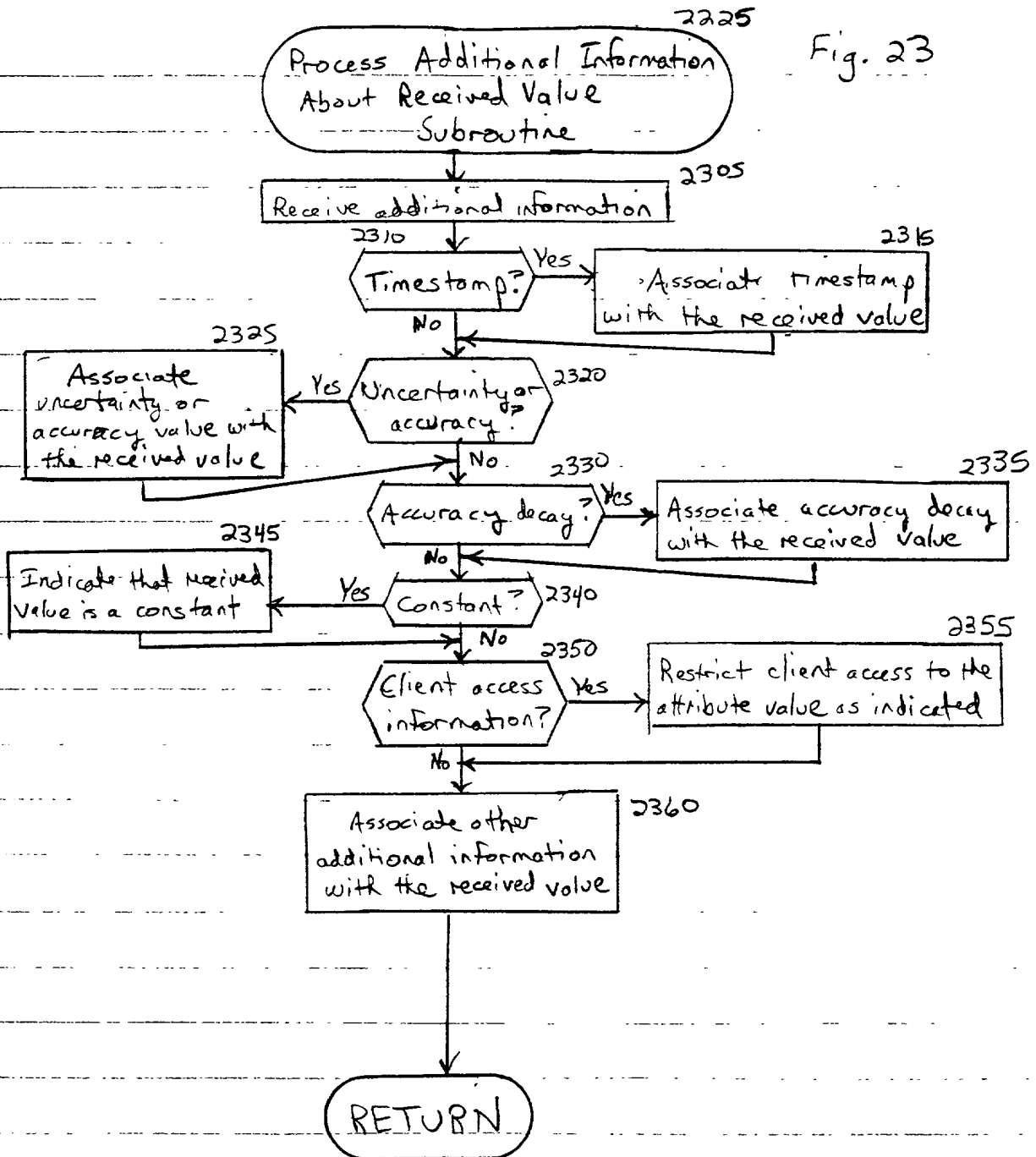


Fig. 24

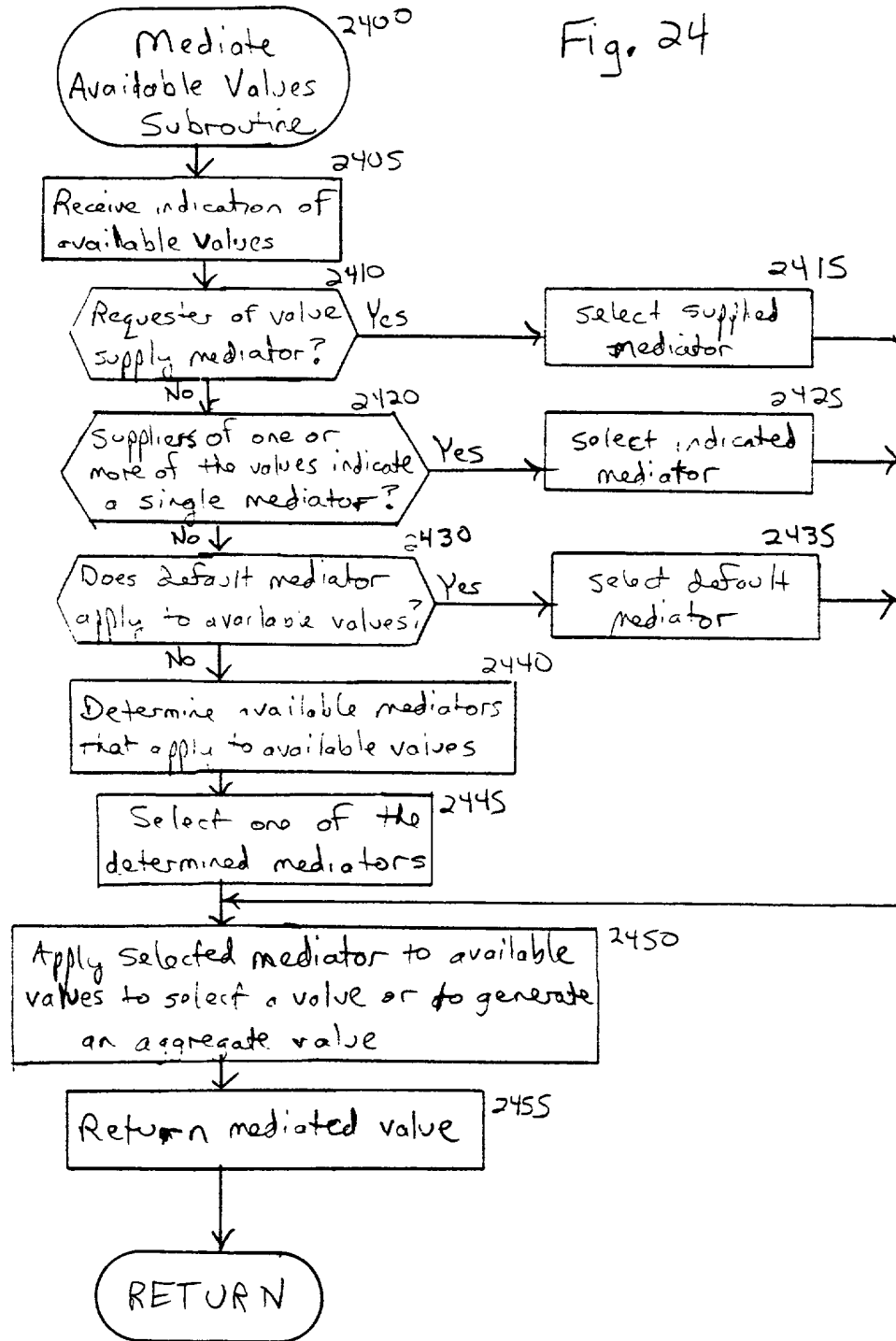


Fig. 25

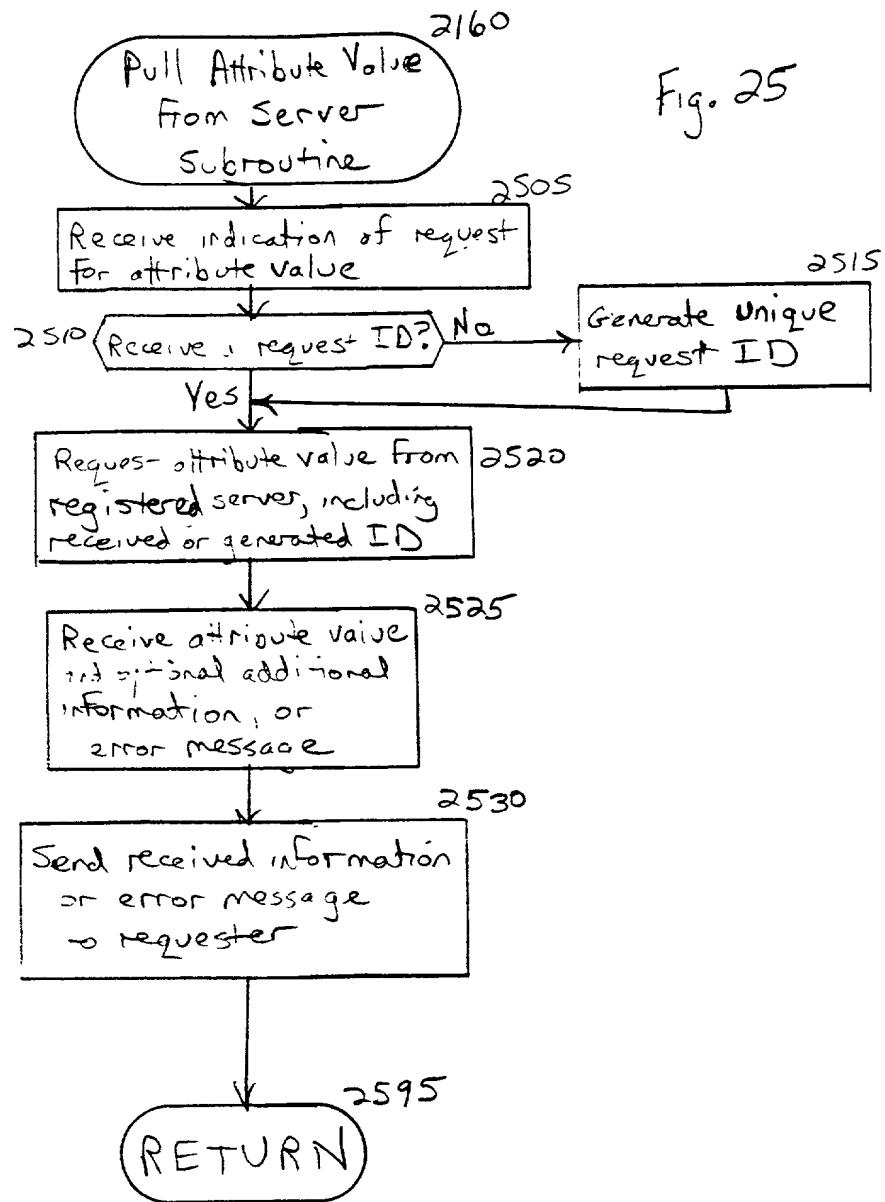
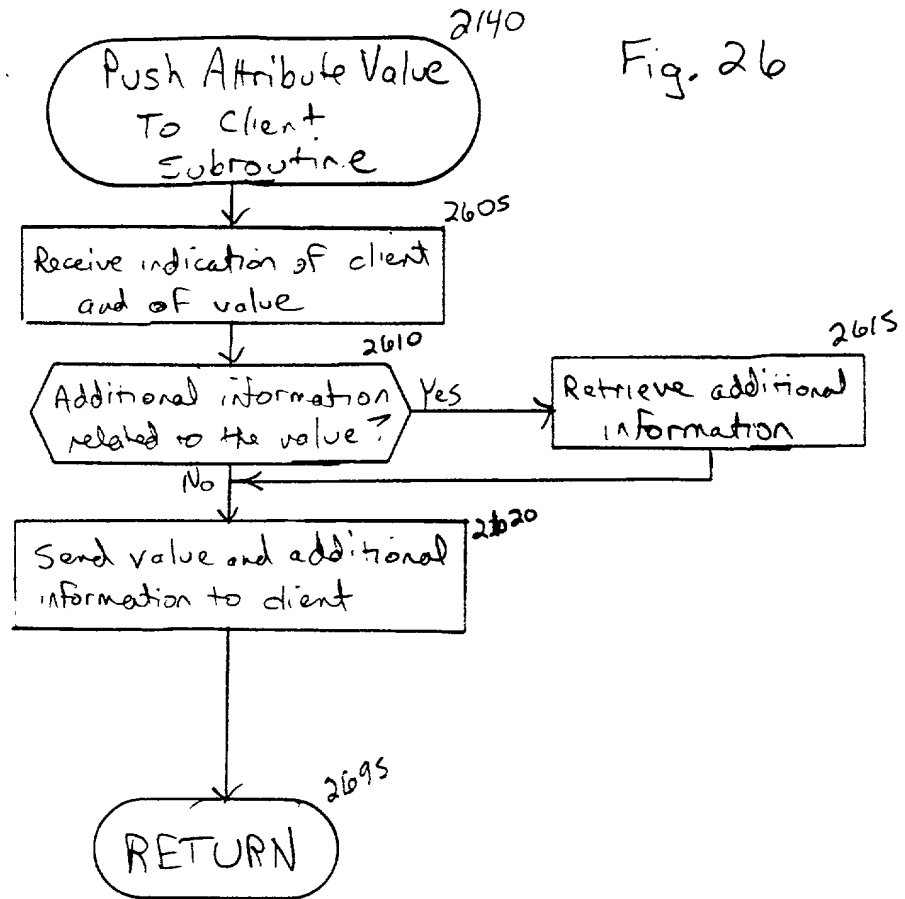
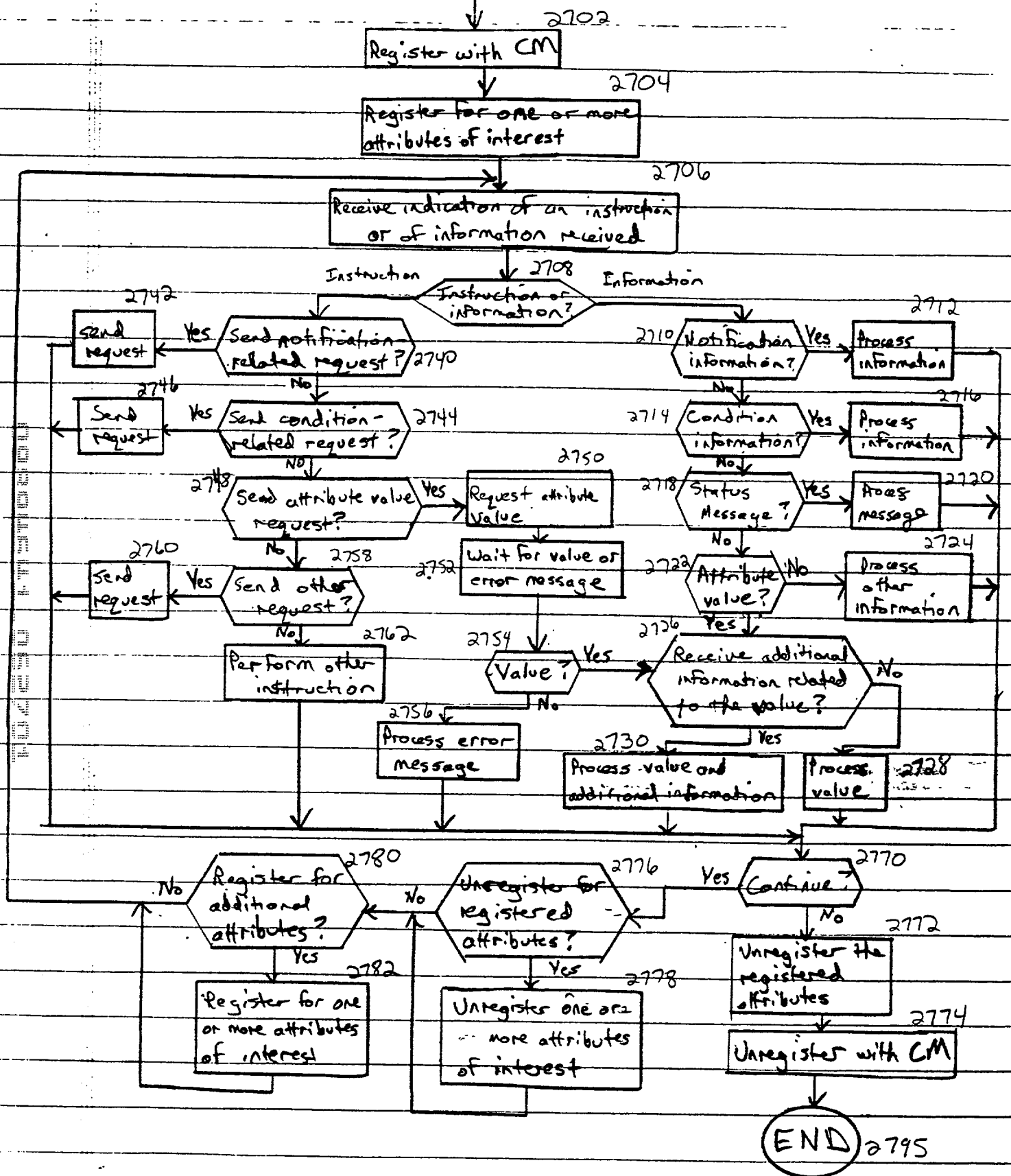


Fig. 26



Context Client Routine 2700

Fig. 27



Context Server Routine 2800

